

CLAIMS

1. A composition for treating an inorganic slurry, the composition comprising:
- 5 (a) a tetrakis(hydroxyorgano)phosphonium salt (herein THP⁺ salt);
- and
- 10 (b) a dispersant selected from the group consisting of:
- (i) phosphonated compounds containing at least one tertiary nitrogen atom;
- 15 (ii) phosphonated oligomers of unsaturated acids;
- (iii) homopolymers of unsaturated acids;
- and (iv) polyphosphates.
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2. A composition according to Claim 1, in which the THP⁺ salt is tetrakis(hydroxymethyl)phosphonium sulphate.
3. A composition according to Claim 1, in which the THP⁺ salt is
- 25 tetrakis(hydroxymethyl)phosphonium chloride, phosphate, nitrate or oxalate.
4. A composition according to any one of Claims 1 to 3, in which the dispersant (b(i)) is a phosphonated compound containing one tertiary
- 30 nitrogen atom.

5. A composition according to Claim 4, in which the dispersant (b(i)) is a sodium salt of nitrilo-tris(methylene phosphonate).
6. A composition according to Claim 5, in which the salt is the tetra-
5 sodium salt.
7. A composition according to any one of Claims 1 to 3, in which the dispersant (b(ii)) is a phosphonated oligomer of maleic acid.
- 10 8. A composition according to Claim 7, in which the oligomer has the general formula $H(CH_2OM.CH_2OM)_n PO_3M_2$, wherein M is a cationic species such that the oligomer is soluble in water and n is a number greater than 1.
- 15 9. A composition according to any one of Claims 1 to 3, in which the dispersant (b(iii)) is a homopolymer of acrylic acid.
10. A composition according to Claim 9, in which the homopolymer has a molecular weight in the range 2000 to 5000.
- 20 11. A composition according to any one of Claims 1 to 3, in which the dispersant (b(iv)) is sodium tripolyphosphate.
12. A method of treating an inorganic slurry to maintain the slurry in a
25 substantially homogeneous phase, the method comprising the addition to the slurry of an effective amount of a composition according to any one of Claims 1 to 11.
13. A method according to Claim 12, in which the ratio of THP⁺ salt
30 to dispersant in the composition is about 2:1 (as active ingredients).

14. A method according to Claim 12 or 13, in which the composition is added to the slurry in an amount in the range 10ppm to 1000ppm (by weight of the slurry).
- 5 15. A method according to Claim 14, in which the composition is added to the slurry in an amount of about 750ppm (by weight of the slurry).
16. A method according to any one of Claims 12 to 15, in which the
10 slurry comprises a calcium carbonate-based slurry.
17. A method according to any one of Claims 12 to 15, in which the slurry comprises a pigment slurry, a clay slurry or a cement slurry.
- 15 18. A method of treating an inorganic slurry, substantially as hereinbefore described with reference to the Examples.